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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,122	08/08/2003	Alex E. Henderson	42P17214	3811
8791 7590 06/13/2007 BLAKELY SOKOLOFF TAYLOR & ZAFMAN 1279 OAKMEAD PARKWAY SUNNYVALE, CA 94085-4040			EXAMINER MORRISON, JAY A	
			ART UNIT 2168	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/637,122	Applicant(s) HENDERSON ET AL.	
	Examiner Jay A. Morrison	Art Unit 2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 67-127 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 67-127 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. Claims 67-127 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 67-79 and 81-127 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cormen et al. ('Cormen' hereinafter) (Introduction to Algorithms,

ISBN: 0262031318) in view of Sellis et al. ('Sellis' hereinafter) ("The R+-Tree: A Dynamic Index For Multi-Dimensional Objects", Proceedings of the 13th VLDB Conference, Brighton 1987, pages 507-518).

As per claim 67, Cormen teaches

A tree data structure stored in a machine readable storage medium of a computer system to communicate information stored within the tree data structure in support of application(s) to execute on the computer system, the tree data structure comprising: (b-tree, page 381)

(a) a root node, wherein the root node comprises: (root, figure 19.1, page 381)

(i) a plurality of sequential keys, wherein each key comprises: (internal node has $n[x]$ keys, figure 19.1, page 381)

and (b) a pointer associated with the root node to identify a child node, the child node comprising a range outside the range of each key in the root node. ($n[x]+1$ children, figure 19.1, page 381)

Cormen does not explicitly indicate "(1) a range for the key, (2) a first value to define a lower bound of the range for the key, and (3) a second value to define an upper bound of the range for the key, (ii) wherein the ranges of the plurality of sequential keys are non-overlapping".

However, Sellis discloses "(1) a range for the key, (2) a first value to define a lower bound of the range for the key, and (3) a second value to define an upper bound of the range for the key, (ii) wherein the ranges of the plurality of sequential keys are

Art Unit: 2168

non-overlapping" (rectangle contains low and high values, rectangles non-overlapping, page 511).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of "(1) a range for the key, (2) a first value to define a lower bound of the range for the key, and (3) a second value to define an upper bound of the range for the key, (ii) wherein the ranges of the plurality of sequential keys are non-overlapping" would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 68, Cormen teaches

at least one of the keys of the root node further include a data element. (satellite information stored in same node, section 19.1, page 384)

As per claim 69, Cormen teaches

at least one of the keys of the root node further includes a pointer to an associated data element. (pointer stored with key to satellite information, section 19.1, page 384)

As per claim 70, Cormen teaches

one of the keys of the root node further includes a pointer to a set of data elements. (pointer stored with key to satellite information, section 19.1, page 384)

As per claim 71, Cormen teaches
the set of data elements comprises a linked list. (linked list, section 11.2, page 204)

As per claim 72.

Cormen does not explicitly indicate "each data element of the set is associated with the range of the one key".

However, Sellis discloses "each data element of the set is associated with the range of the one key" (rectangle covered by object parent, page 511).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of "each data element of the set is associated with the range of the one key" would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 73,

Cormen does not explicitly indicate "one data element of the set is further associated with another one of the keys of the root node".

However, Sellis discloses “one data element of the set is further associated with another one of the keys of the root node” (G in rectangle A and P, figures 3.4 and 3.5, page 511).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of “one data element of the set is further associated with another one of the keys of the root node” would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 74,

Cormen does not explicitly indicate “the set of data elements is prioritized”.

However, Sellis discloses “the set of data elements is prioritized” (figure 3.4, page 511).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of “the set of data elements is prioritized” would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 75,

Cormen does not explicitly indicate “a highest priority data element of the set of data elements corresponds to a data element having a longest length prefix”.

However, Sellis discloses “a highest priority data element of the set of data elements corresponds to a data element having a longest length prefix” (figure 3.8, page 513).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of “a highest priority data element of the set of data elements corresponds to a data element having a longest length prefix” would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 76,

Cormen does not explicitly indicate “a temporary node including a number of keys that is less than a minimum number of keys”.

However, Sellis discloses “a temporary node including a number of keys that is less than a minimum number of keys” (orphaned rectangles, section 3.4, page 513).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of “a temporary node including a number of keys that is less than a minimum number of keys” would have given those skilled in the art the tools to improve the invention by

storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 77,

Cormen does not explicitly indicate "a temporary key, the temporary key having a range overlapping with the range of at least one of the keys in the root node".

However, Sellis discloses "a temporary key, the temporary key having a range overlapping with the range of at least one of the keys in the root node" (section 3.5, page 513).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen and Sellis because using the steps of "a temporary key, the temporary key having a range overlapping with the range of at least one of the keys in the root node" would have given those skilled in the art the tools to improve the invention by storing data in a more efficient and useful manner. This gives the user the advantage of being able to more easily use the data in wider variety of applications.

As per claim 78, Cormen teaches

the range of the child node is between the ranges of two sequential keys. (figure 19.1, page 381)

As per claim 79, Cormen teaches

the range of the child node is beyond the range of an end key of the number of keys. (figure 19.1, page 381)

As per claim 81, Cormen teaches

the root node and the child node comprise a B-Tree data structure. (page 381)

As per claim 82, Cormen teaches

the machine readable storage medium comprises one of a memory device, a carrier wave, an optical storage device, and a magnetic storage device. (page 382)

As per claims 83-95,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 67-79 and are similarly rejected.

As per claim 96, Cormen teaches

the plurality of sequential keys are stored in contiguous locations of the machine readable storage medium. (page 382)

As per claims 97-109,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 67-79 and are similarly rejected.

As per claim 110, Cormen teaches
a processing device coupled with the machine readable storage medium. (page 382)

As per claim 111, Cormen teaches
the processing device includes logic to generate the tree data structure. (page 382)

As per claim 112, Cormen teaches
a set of instructions stored in the machine readable storage medium that, when executed on the processing device, generate the tree data structure in the machine readable storage medium. (page 382)

As per claim 113, Cormen teaches
the processing device includes a set of instructions stored thereon that, when executed on the processing device, generate the tree data structure in the machine readable storage medium. (page 382)

As per claims 114-126,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 67-79 and are similarly rejected.

As per claim 127,
the number of sequential keys are stored in contiguous locations of the machine readable storage medium. (page 382)

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cormen et al. ('Cormen' hereinafter) (Introduction to Algorithms, ISBN: 0262031318) in view of Sellis et al. ('Sellis' hereinafter) ("The R+-Tree: A Dynamic Index For Multi-Dimensional Objects", Proceedings of the 13th VLDB Conference, Brighton 1987, pages 507-518) and further in view of Puleston (Publication Number 2002/0181480).

As per claim 80,
Neither Cormen or Sellis explicitly indicate "the range of each of the keys correspond to a range of network addresses".

However, Puleston discloses "the range of each of the keys correspond to a range of network addresses" (paragraph [0013]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Cormen, Sellis, and Puleston because using the steps of "the range of each of the keys correspond to a range of network addresses" would have given those skilled in the art the tools to improve the invention by storing network address in a well-known data structure. This gives the user the advantage of having quick access to network address during routing.

Response to Arguments

5. Applicant's arguments filed 3/26/07 have been fully considered but they are not persuasive.

With regards to Applicant's argument that Sellis does not disclose "(1) a range for the key, (2) a first value to define a lower bound of the range for the key, and (3) a second value to define an upper bound of the range for the key, (ii) wherein the ranges of the plurality of sequential keys are non-overlapping", it is noted that Sellis discloses a rectangle that contains high and low values for the x-coordinate and are non-overlapping (page 55, second column), and while there is an additional y-coordinate, Sellis further discloses B-trees in k-dimensions (page 509, section 3.1), and therefore Sellis discloses the limitation.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2168

The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay A. Morrison whose telephone number is (571) 272-7112. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TIM VO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Jay Morrison
TC2100

Tim Vo
TC2100